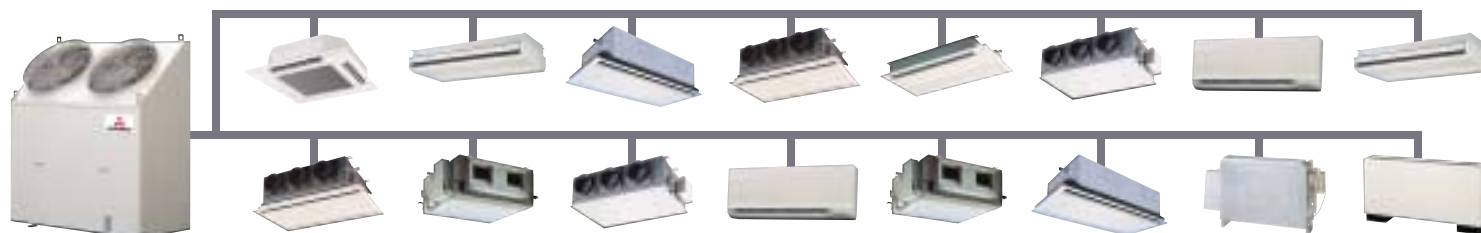
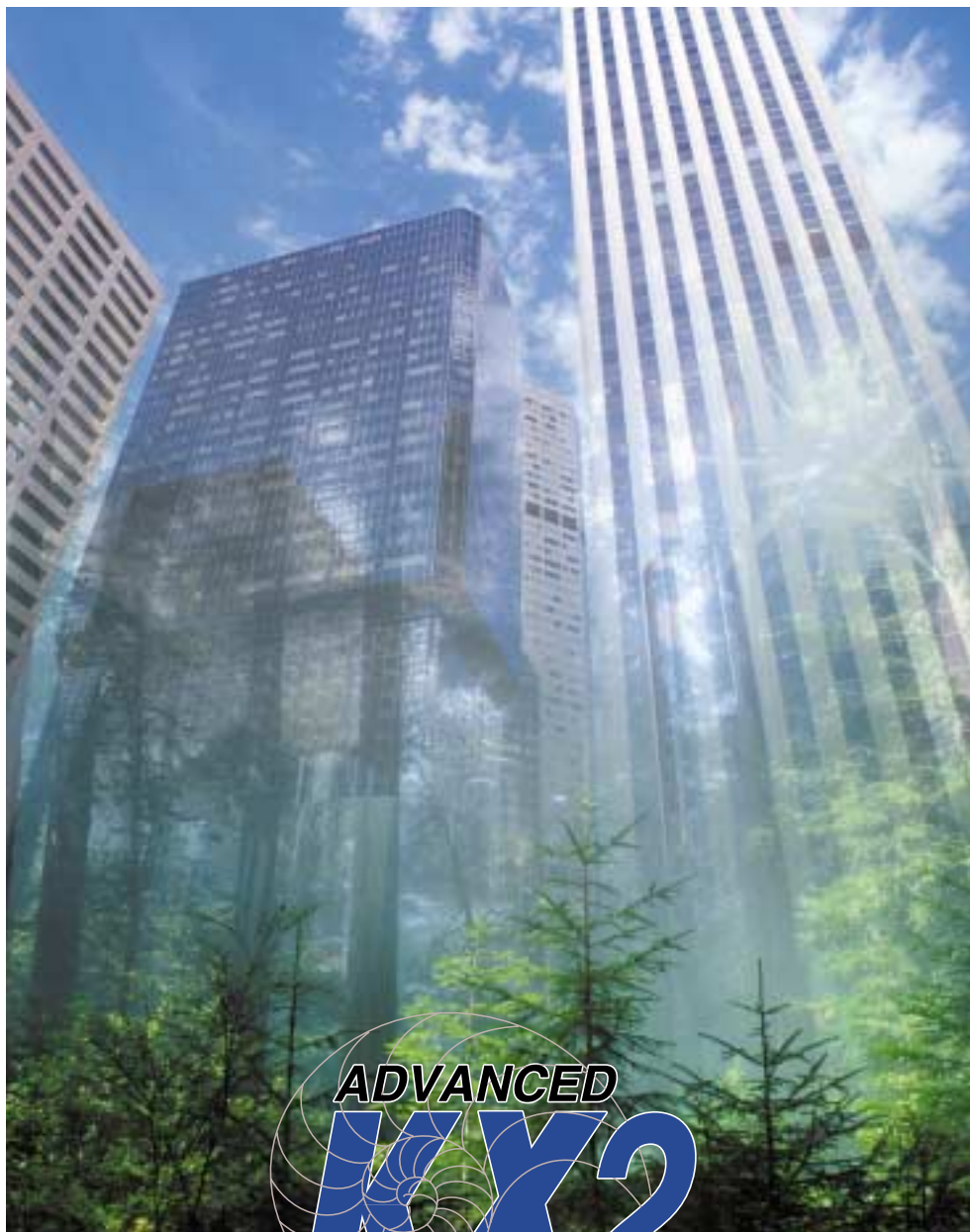


# MITSUBISHI

## DAIYA

**Inverter driven, Multi-indoor-unit, Climate Control KX2-System  
(CE&NON-CE/TYPE)**



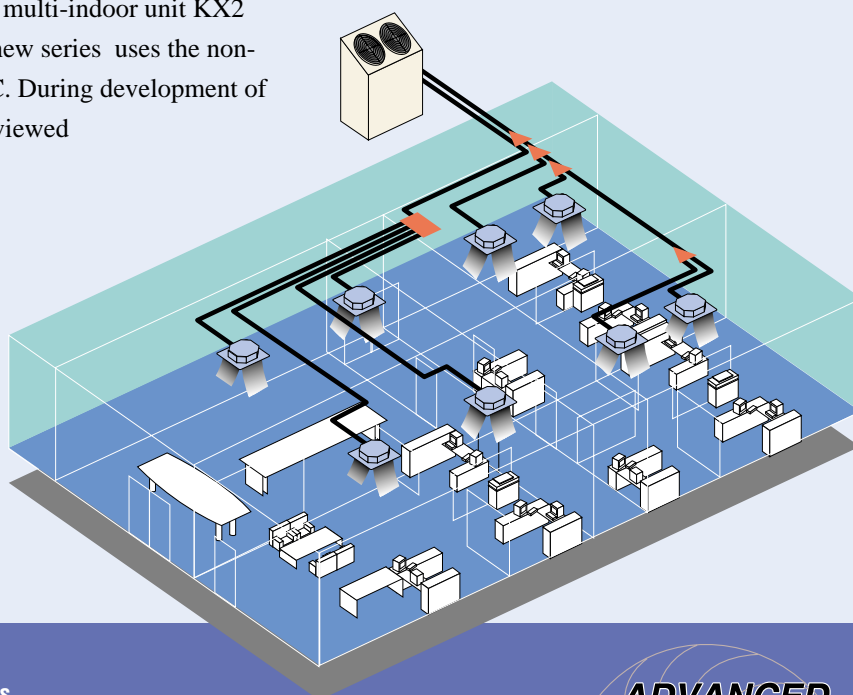
**MITSUBISHI**  
HEAVY INDUSTRIES, LTD.

CATALOGUE NO:00P009/D

Все каталоги и инструкции здесь: <http://splitoff.ru/tehn-doc.html>

# Introducing the "New Refrigerant Model" for the global environment! Achieving the industry's smallest compact design.

To respond to global environment issues, such as ozone layer destruction, which are currently encompassing the air-conditioner environment, MHI has newly developed the scroll inverter driven multi-indoor unit KX2 Series to handle alternative refrigerants. This new series uses the non-ozone layer destructing new refrigerant R407C. During development of compatible models, the air-conditioner was reviewed from various aspects such as air-conditioning performance, shape and size. Using this "New Refrigerant Model" created with MHI's air-conditioning technology as a stepping stone, we plan to structure an energy system sensitive the global environment.



## R407C Alternative Refrigerant Models

FDCP140HKXE2B  
FDCP224HKXE2B  
FDCP280HKXE2B

## R22 Refrigerant Models

FDCJ140HKXE2B  
FDCJ224HKXE2B  
FDCJ280HKXE2B

## Inverter Multi



**New Alternative Refrigerant Models. New alternative refrigerant multi-indoor unit with enhanced energy efficiency (COP) through improved compressor and heat exchanger performance.**

The multi KX2 Series, a "new alternative refrigerant model", is now available. A high COP has been achieved by mounting a newly developed high efficiency compressor in the outdoor unit and by improving the heat exchanger performance. Furthermore, the industry's smallest compact design has been incorporated for the indoor unit, by that improving the installation and transportation performance. The number of connectable indoor units has been increased, allowing flexible designs. Four models from 5hp to 10hp have been prepared as the "new alternative refrigerant R407C models".

**Table of connectable units**

No. of connectable units		Indoor unit			Operation outdoor air temperature range		Max. piping length	Max. level difference	
		No. of connectable units	Connectable capacity	Variation	Cooling	Heating			
Model									
	KX2 New alternative refrigerant R407C model FDC	P140HKXE2B(5HP) J140HKXE2B(5HP)	8 unit	70~182	Min.22 model Max.160 model	-5℃ ↓ 43℃	-15℃WB ↓ 18.5℃WB	100m	50m
		P224HKXE2B(8HP) J224HKXE2B/D(8HP)	13 unit	112~292	Min.22 model Max.280 model			100m (130m) *Custom order	
P280HKXE2B(10HP) J280HKXE2B/D(10HP)		16 unit	140~364						

When the system is simultaneously operated with the capacity exceeding 100% of the outdoor unit, the performance of each indoor unit will decrease slightly.

# Outdoor unit

## Technology developed to ensure high reliability

A high reliability is ensured with the new alternative refrigerant model with the following means.

1. Increased compressor motor torque,
2. Increased withstand level of the refrigerant system (piping, function parts),
3. Improvement of the high-pressure protection control,
4. Optimizing of the heat exchanger sensor position, and
5. Incorporation of newly developed compressor oil, etc.

## Use of multiple compressors to increase the operating frequency range

Two vertical scroll compressors are mounted in the 8 and 10hp (224 and 280 model), allowing fine energy saving operation from 25Hz. Furthermore, by downsizing the inverter, the generation of high frequencies is suppressed. If the non-inverter compressor should fail, emergency operation is possible using only the inverter compressor.

## Outstanding low sound levels with newly developed large fan

The newly developed 570mm diameter large fan, realizes low sound levels of 59dB, the lowest in the industry. (Approx. 2db reduction compared to current 10hp model.) The silent mode that allows the operation sound to be reduced 2 to 3db is also available.



## Heating operation up to an outdoor temperature of -15°C

Heating operation is also possible to an outdoor temperature of -15°C, so the unit can be used even in cold climates. Cooling operation is also possible up to an outdoor temperature of -5°C, so cooling/heating can be carried out year-round.

## 130m long piping specifications (custom order)

1. The level difference of the outdoor unit and indoor unit is maximum of 50m, and an one way length of 100m is possible. When custom orderd. one way length of up to 130m is possible, making this the longest piping specification in the industry.
2. The piping length after the first branch has been extended up to 40m as a standard.



## Improved installation and construction performance with ultra-compact design

The 8 and 10hp (224 and 280) outdoor unit height has been reduced from 1,700mm to 1,450mm by changing the heat exchanger to a rear panel single face heat exchanger. Now the size of the multi-KX unit is the same as the MHI's 8 to 15hp outdoor unit (224 to 400) class for stores. The width of the 5hp (140) has also been downsized.

## Remote addressing with new controller

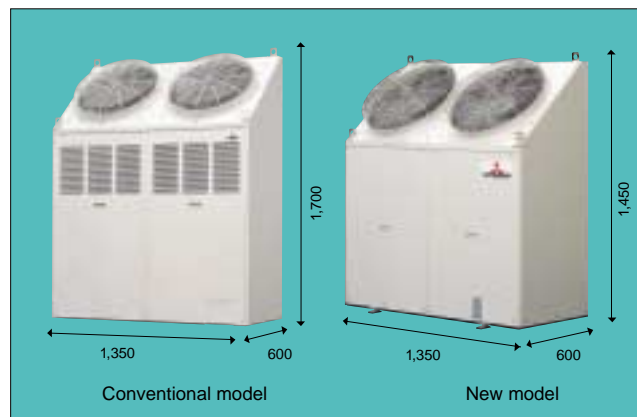
If the remote controller and indoor unit are connected one-on-one, the address can be decided from the remote controller without setting switches on the indoor PCB.

## Demand control function with high energy saving effect

The compressor is forcibly turned OFF by external signals to correspond to peak cuts during the summer.

## Indoor/outdoor connection unmatched check function mounted

An indoor/outdoor unmatched check function that automatically checks each module whether the indoor/outdoor unit setting and piping system are correct during the trial operation has been mounted.



## Improvement of air-conditioning control with CnT connector signal

By inputting the CnT signal, the unit operability enable/prohibit is controlled making control from a commercially available timer easier. A cooling/heating forced operation mode has been added so that forced control of only the operation mode is possible with no "pressed-first priority".

## Improved service function with 7-segment display on outdoor PCB

Service information is digitally displayed on the outdoor unit with three digits, allowing the serviceability to be improved and speeded up.

\*Details on 7-segment display ... Operation frequency, error display, each temperature data, current temperature, etc.



### Display data

0	Inverter operation frequency or error code	8	SV1
1	Heat exchanger temperature	9	SV2
2	Outdoor temperature	10	63H1
3	Dome lower (CM1) temperature	11	63H2
4	Discharge pipe (CM1) temperature	12	
5	Discharge pipe (CM2) temperature	13	NO. of connected indoor units
6	CM (CM1) current	14	Compressor operation Hz (full load conversion value) FK
7	CT (CM2) current		

## Improved indoor unit control

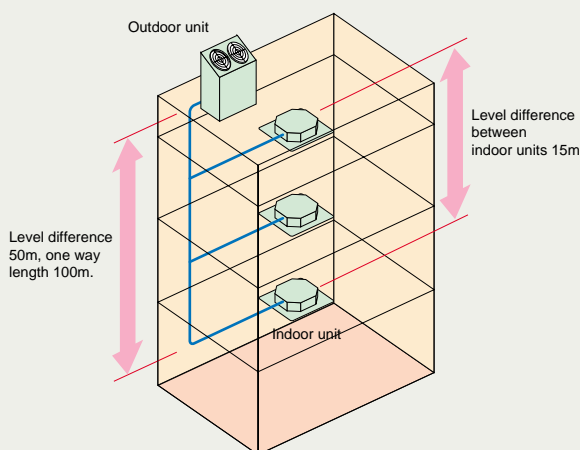
This control stops the fan when the heating thermostat turns OFF. Besides reducing the sound of refrigerant flowing in the indoor unit, and taking measures to prevent overheating, the indoor unit control has also been improved such as the addition of a function to stop only the relevant indoor unit when a drain error occurs.

## Option

### Preparation of built-in type high frequency harmonics measure parts

Please contact the MHI Sales Office for details.

## Workability



\*This is 40m when the outdoor unit is lower.

### 130m piping for large scale buildings

The level difference of the outdoor unit and indoor unit is 50m (\*), and the one way length is 100. With custom orders, a long piping design of up to 130m, the longest in the industry, is possible. The level difference between indoor units can also be set to 15m. (The piping length after the first branch has been changed from the conventional 30m to 40m. Contact the MHI Sales Office for details.)

### By the use of the 4-way piping exit option for the outdoor unit, a flexible layout can be set

A 4-way piping exit ports from the outdoor unit has been prepared allowing the outdoor unit installation position to be decided according to the installation conditions. The piping exit position can be selected from front, back, right, or bottom.



## SPACE

### Layout-free Refrigerant Piping

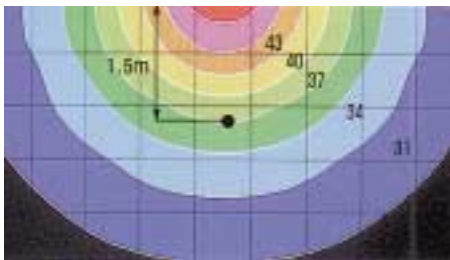
The branch type piping makes the system flexible enough to satisfy any layout plan on the floor or in a room.



## SILENT

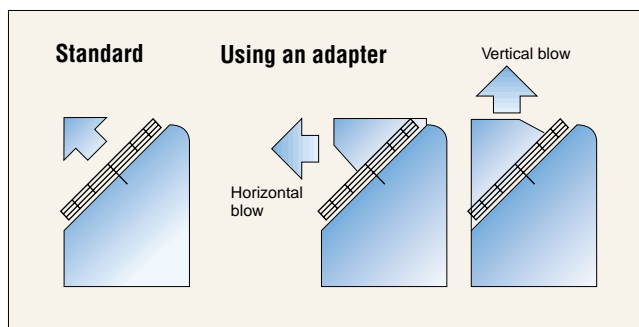
### MHI's High Technology Achieves a Quietness for Both People and the Environment

Large diameter fan developed by MHI operates efficiently. Very little resistance to air flow assures extremely quiet operation. Even at low speed, Model FDTJ 28's sound level is only 34dB.



## SYSTEM

### Air Blow Direction

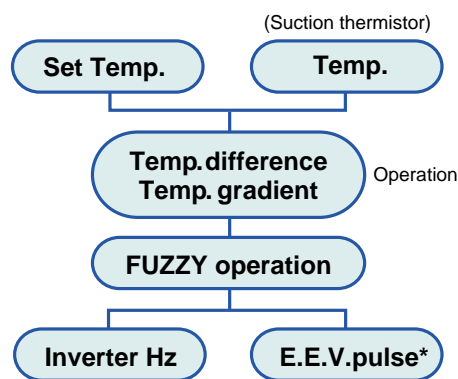
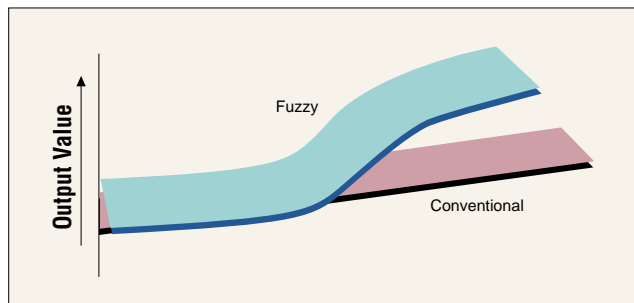


## SPEEDY

### Unique Fuzzy Control for Full Flexibility

#### Rapid Temperature Response and High Stability

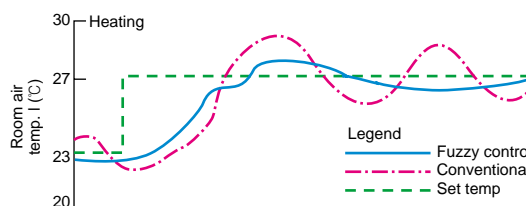
An intake temperature sensor automatically controls both the existing and set temperature based on a "fuzzy logic". With a speed of response and stability previously not possible, the system powerfully performs to provide you with a high level of comfort.



\*E.E.V.pulse keeps the unit operating at the optimum condition. The system uses an electronic expansion valve in indoor units to control the flow rate of refrigerant according to the load.

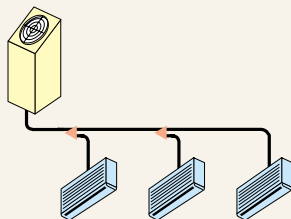
### Eliminating Thermal Unevenness with ON-OFF Control

An air-conditioned temperature tends to be uneven when the air-conditioning system is simply controlled on or off. This problem has remained unsolved until today. Now, MHI's new temperature sensor eliminates this problem by swiftly checking for any thermal unevenness. Other effects of an indoor unit on-off operations are also suppressed to the minimum level possible. Thus, the system conditions the air and maintains the room temperature at a comfortable, constant level. A sophisticated design for sophisticated users.



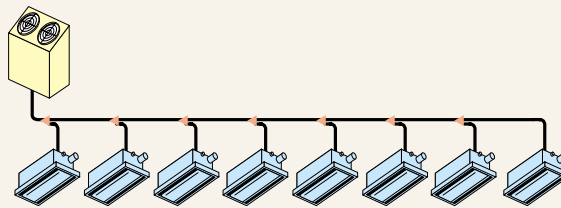
# Breakdown of system components

## Example of KX2 system 5HP



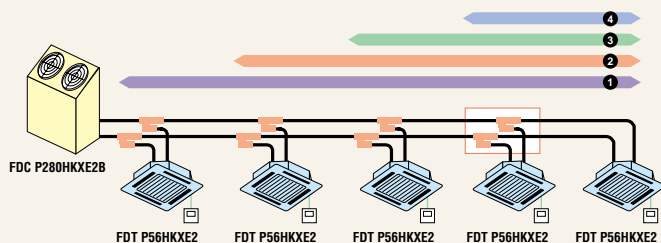
FDCP140HKXE2B	Outdoor unit	x1
FDKP45HKXE2	Indoor unit	x3
RCD-HKX-S-E	Remote controller	x3
DIS-1KX30-E	Branch pipe	x1
DIS-1KX10-E	Branch pipe	x1

## Example of KX2 system 10HP



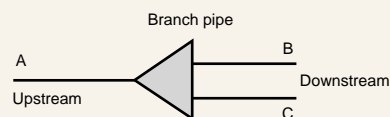
FDCP280HKXE2B	Outdoor unit	x1
FDTWP36HKXE2	Indoor unit, including panel	x8
RCD-HKX-S-E	Remote controller	x8
DIS-1KX30-E	Branch pipe	x6
DIS-1KX10-E	Branch pipe	x1

## Selection of the independent branch pipe set (When five FDT56HKXE2 units are connected to FDCP280HKXE2B)



- ① Downstream total capacity is 280 (56 type x 5 units) → The downstream is 101 or more, so select **DIS-1KX30-E**
- ② Downstream total capacity is 224 (56 type x 4 units) → The downstream is 101 or more, so select **DIS-1KX30-E**
- ③ Downstream total capacity is 168 (56 type x 3 units) → The downstream is 101 or more, so select **DIS-1KX30-E**
- ④ Downstream total capacity is 112 (56 type x 2 units) → The downstream is 101 or more, so select **DIS-1KX30-E**

## Selection of branch pipe



The branch pipe size is selected from the downstream B and C total (=A) capacity.

## Optional independent branch pipe set

Corresponding outdoor unit (horsepower)		Type	MHI Part No.
<b>FDC</b>	<b>140HKXE2B(5) 224HKXE2B/D(8) 280HKXE2B/D(10)</b>	When downstream is less than 101	DIS-1KX10-E
		When downstream is 101 or more, 371 or less	DIS-1KX30-E

The branch pipe must be used according to the total downstream capacity of the indoor unit.  
(One set is always required for each branch.)

## Outdoor unit

[ R407C ] FDCP140HKXE2B  
[ R22 ] FDCJ140HKXE2B



[ R407C ] FDCP224HKXE2B  
FDCP280HKXE2B

[ R22 ] FDCJ224HKXE2B  
FDCJ280HKXE2B  
(STOCK ONLY)

FDCJ224HKXE2D  
FDCJ280HKXE2D  
(NEW)



# Specification

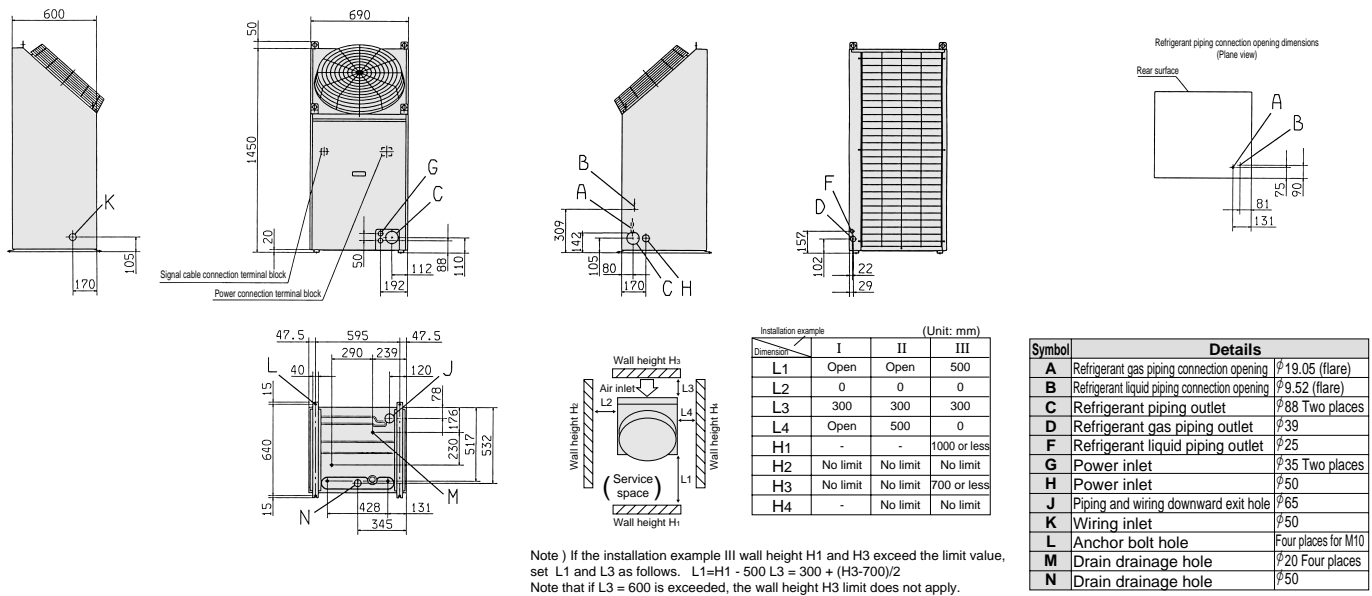
## KX2 series

Model		R407C R22	FDC P140HKXE2B<5hp> FDCJ140HKXE2B<5hp>	FDC P224HKXE2B<8hp> FDCJ224HKXE2B/D<8hp>	FDC P280HKXE2B<10hp> FDCJ280HKXE2B/D<10hp>
Power supply			3phase 380/415V 50Hz		
Capacity	Cooling capacity 1)	kW	14.0	22.4	28.0
	Heating capacity	Standard kW	16.0	25.0	31.5
Power consumption	Cooling	kW	6.8	9.8	11.7
	Heating	Standard kW	5.7	8.3	9.4
Outline dimensions	Heightxwidthxdepth	mm	1450x690x600	1450x1350x600	
Weight		kg	150	250	265
Compressor motor output	units	kW	3.5x1	3.5+2.2	3.5+3.75
Blower motor output	units	W	100	100x2	
Air flow		m³/min	90	180	
Operation sound 2)		dB	56	58	59
Connecting pipe	Liquid piping		φ9.52x0.8(flare connection)		
	Gas piping		φ12.7x1.0(flare connection)		
Allowable refrigerant piping length		m	100		

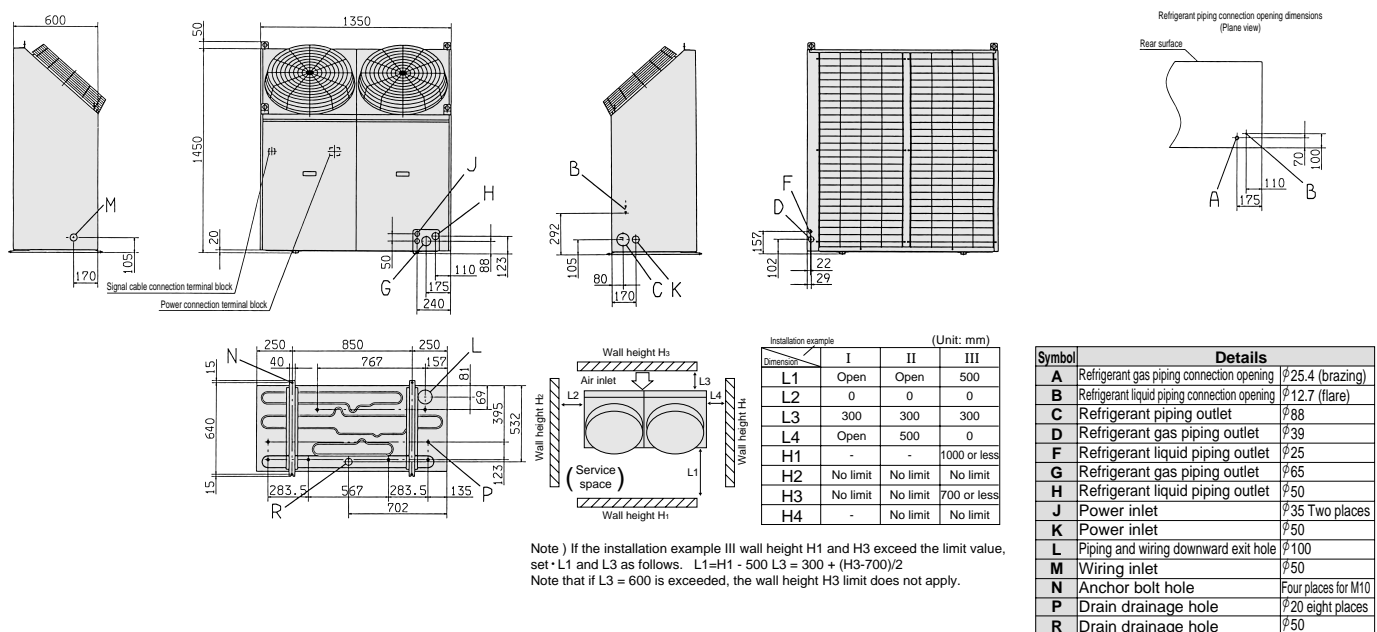
Note 1) The cooling and heating capacities are the values when connecting and operating the rated capacity indoor unit under ISO T1 conditions.

Note 2) The operation sound complies with the ISO Standards, and is the value converted to the equivalent anechoic chamber value. When measured in the actually installed state, the value is normally larger than the display value due to the effect of surrounding noise and echo.

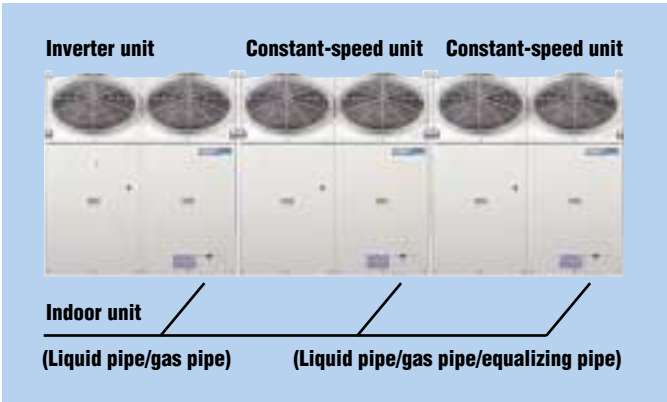
## FDCP140, FDCJ140



## FDCP224 · P280, FDCJ224 · J280



# Outdoor unit



## Improvement of workability through concentration of refrigerant pipes

Multi X2 is a system which achieves the large capacity multi-application of plural units with the outdoor unit of 10 horsepowers as basic. This makes it possible to concentrate the refrigerant pipes into one pipe.

## This contributes to reduce the work expense of the refrigerant pipes and the space of the pipe shaft.

Complete pursuit for the reliability of the air conditioner To solve the maldistribution of the refrigerator oil and refrigerant among the units, the oil return control, oil equalizing operation and refrigerant accumulation/collection control are applied. In addition, the oil level control of the compressor and the optimal control of the refrigerant accumulation amount are also applied. Thus, the reliability is completely improved.

## Reliable system with back-up operation

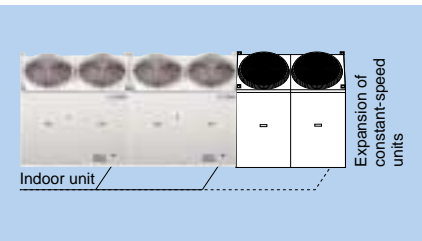
The advantage of the system of plural outdoor units is the back-up operation. The back-up operation is provided to operate another outdoor unit in the emergency mode even if any outdoor unit should be troubled. As the highly reliable safety function, the multi type large capacity prevents the air conditioning system from a complete stop as a fatal trouble.

## Demonstration of high-efficiency

Inverter unit (main unit)	10HP	J280HKXE2-K
Constant-speed unit (sub unit)	10HP	J280HKXE2-KT

**inverter control**  
The inverter

compressor is equipped in the main unit, and the capacity control type compressor is equipped in the sub unit. Together with the minute capacity control, COP is improved during partial load operation.



## Applicable for renewal expansion.

Since the multi system has such a high degree of design freedom as the outdoor unit can be installed and connected at the site, an easy work to additionally connect the outdoor unit will solve the problem even if the air conditioning load increases after installation or the air conditioner is added in the future.

## Heating operation up to an outdoor temperature of -15°C

Heating operation is also possible to an outdoor temperature of -15°C, so that unit can be used even in the cold climates. Cooling operation is also possible up to an outdoor temperature of -5°C, so cooling/heating can be carried out year-around.

## Indoor/outdoor connection unmatched check function mounted.

An indoor/outdoor unmatched check function that automatically checks each module whether the indoor/outdoor unit setting and piping system are correct while the trial operation has been mounted.

It has improved the reliability of the work.

## Improvement of air-conditioning control with CNT connector signal.

By inputting the CNT signal, the unit operability enable/prohibit is controlled making control from a commercially available timer easier. A cooling/heating forced operation mode has been added so that forced control of only the operation mode is possible with no pressed-fist priority.

## Improved service function with 7-segment display on outdoor PCB.

Service information is digitally displayed on the outdoor unit with three digits, allowing the serviceability to be improved and speed up.

Details on 7-segment display ... Operation frequency, error display, each temperature data, current temperature, etc.



## Display data

0	Inverter operation frequency or error code	8	SV1
1	Heat exchanger temperature	9	SV2
2	Outdoor temperature	A	63H1
3	Dome lower (CM1) temperature	B	63H2
4	Discharge pipe (CM1) temperature	C	63L
5	Discharge pipe (CM2) temperature	D	Number of connected indoor units
6	CT (CM1) current	E	Compressor operation HZ (Full load conversion value)
7	CT (CM2) current	F	The above are sequentially displayed



## Remote addressing with new controller.

If the remote controller and indoor unit are connected one-on-one, the address can be decided from the remote controller without setting switches on the indoor PCB.

## Demand control of high energy saving effect

Whether the demand is valid or invalid can be set at each sub unit. On the 30-horsepower type, it is selectable at three steps of 0%, 33% and 66%.

### Basic unit specification of KX2 (large-capacity combination)

Model		10HP	
		Inverter unit	Constant-speed unit
		FDC J280HKXE2-K	FDC J280HKXE2-KT
Power supply	V	3phase 380v 50HZ	
Capacity	Cooling capacity	kW	28.0
	Heating capacity		31.5
Outline dimensions	mm	1450×1350×600	
Height X Width X Depth			
Weight	kg	265	240
Compressor motor output X Number of units	kW	3.5+3.75	9
Blower motor output X Number of units	W	100+100	
Blow rate	m <sup>3</sup> /mm	180	
Operating sound	dB	59	
Connection piping	Liquid pipe	28.58	
	Gas pipe	12.7	
Tolerable length of refrigerant piping	m	100	

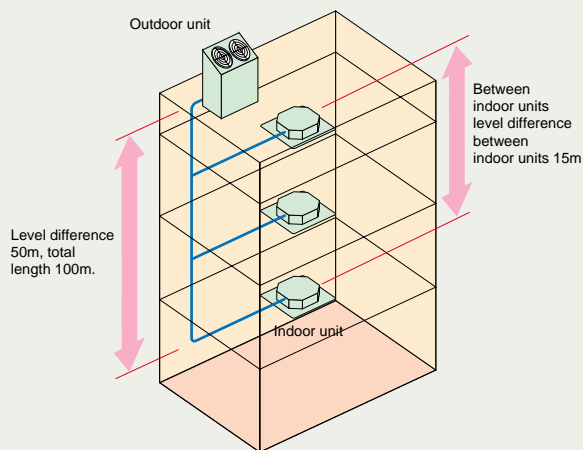
### Inverter Multi

Model		20HP	30HP
		FDC J560HKXE2	FDC J840HKXE2
Cooling capacity	W	56000	84000
Heating capacity		63000	94500
Electric power for cooling	kW	21.8	31.9
Electric power for heating		18.5	27.6
Cooling operation current	A	36.4	53.5
Heating operation current		31.1	46.5
Starting current	A	237	374
Coefficient of electric power for cooling	%	91	91
Coefficient of electric power for heating		90	90

### Branch pipe set to combine the separately available outdoor unit

Total capacity of outdoor units	Part No.
J560HKXE2	DOS-2
J840HKXE2	DOS-3

## Workability



### 100m long piping applicable for a large-scale building

At the height difference of 50m (\*) between indoor unit and outdoor unit, the total length is 100m. The level difference between indoor units can be set to 15m between the indoor units. (The pipe length beyond the first branch is changed from existing 30m to 40m. Please contact sales office for details.)

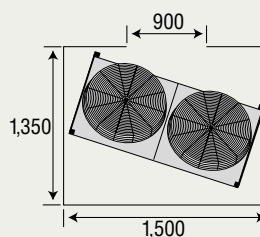
\* 40m in the following case of the outdoor unit.

### By the use of 4-way piping exit option for the outdoor unit, a flexible layout can be set.

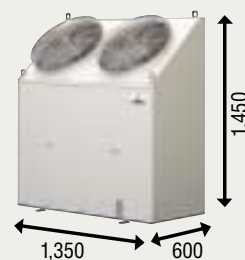
A 4-way piping exit ports from the outdoor unit has been prepared allowing the outdoor unit installation position to be decided according to the installation condition. The piping exit position can be selected from front, back right, or bottom.

### It is as compact as it can be carried with the elevator.

On the multi KX combination series which achieves the large capacity by installing plural outdoor units of 10 horsepower, the installation dimension can be calculated from two kinds of modules. One module is so compact a design of the top class in the industry that it can be carried with the elevator.

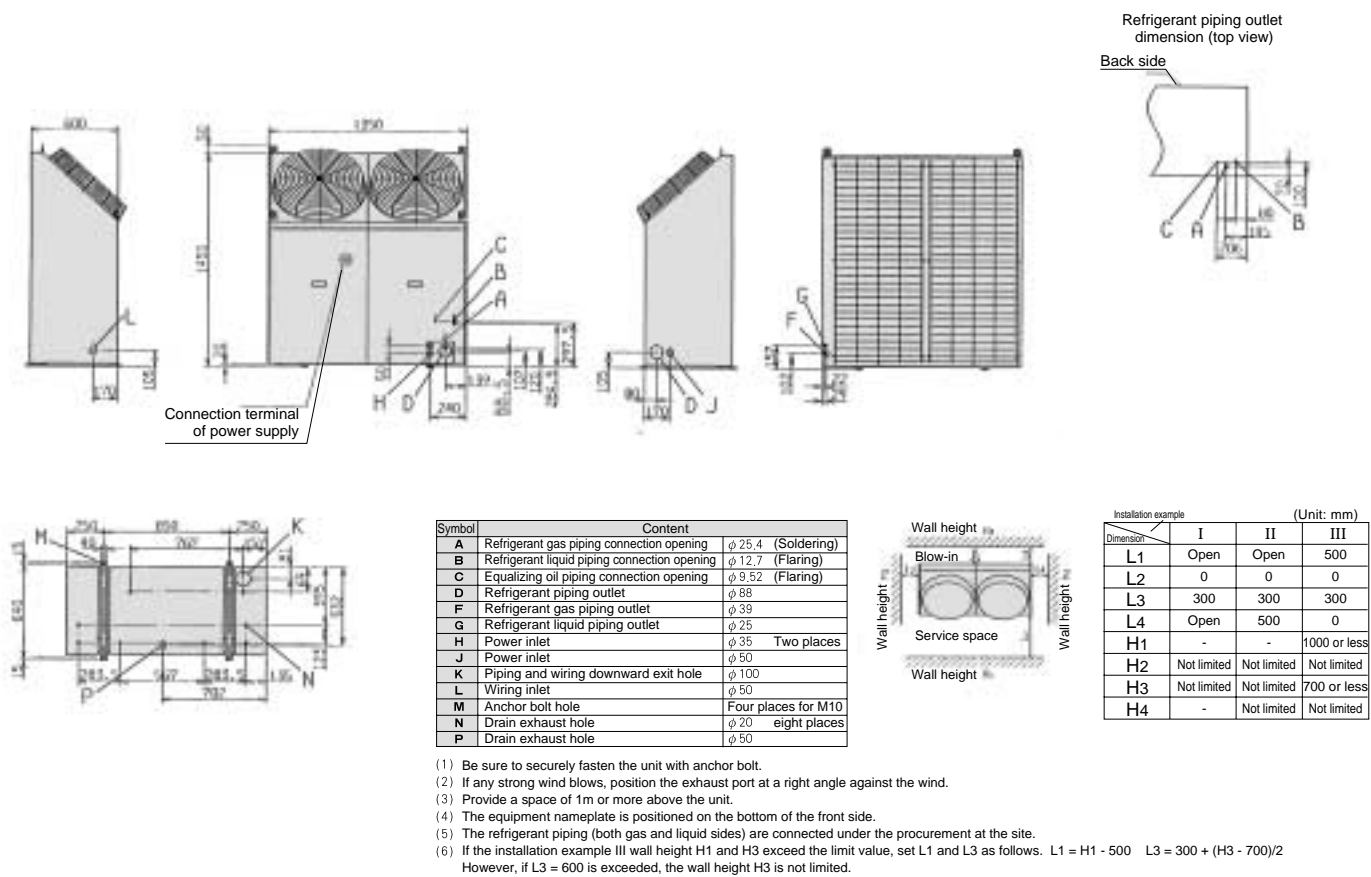


Ordinary elevator

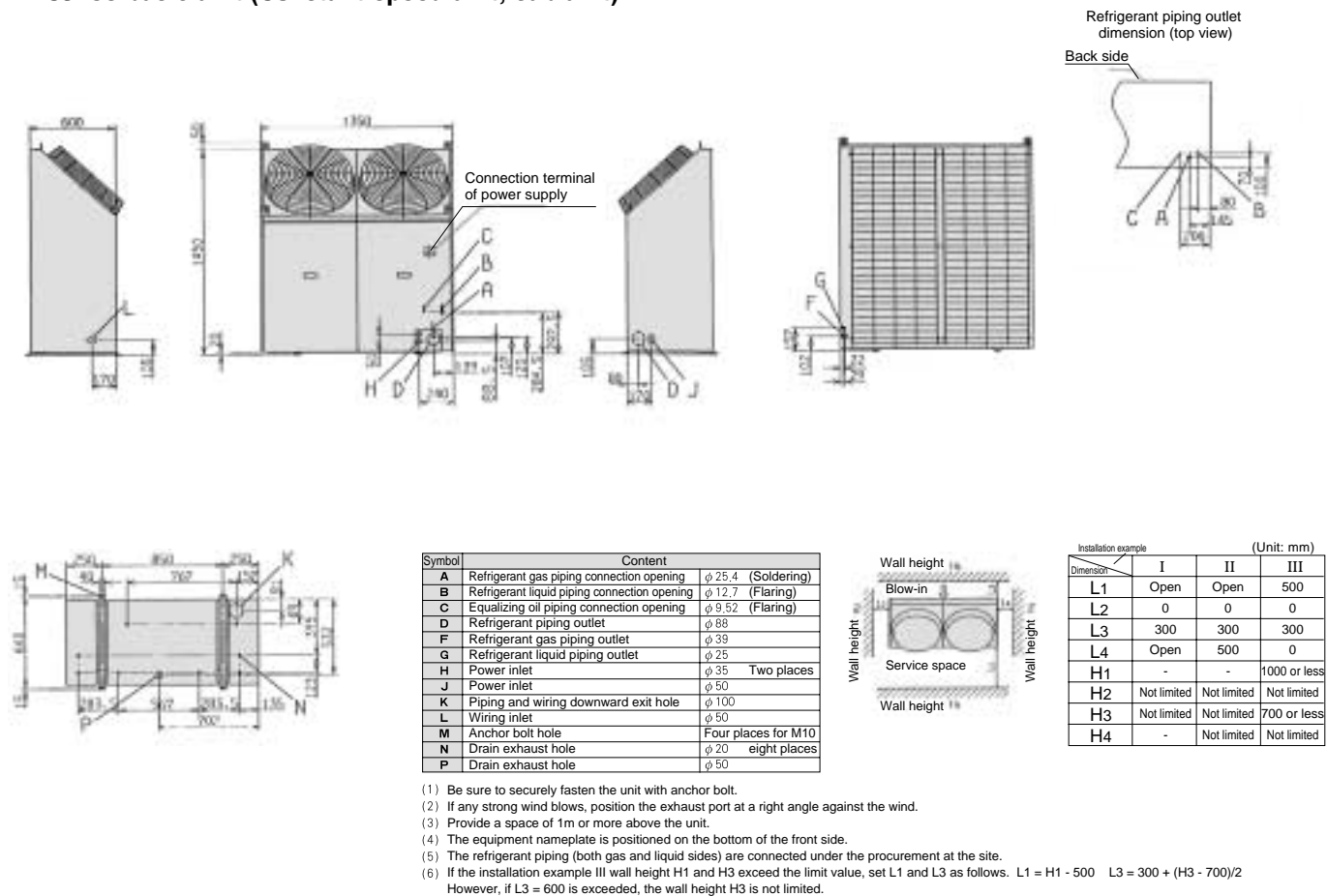


New model

FDCJ280 basic unit (inverter unit and main unit)



FDCJ280 basic unit (Constant-speed unit, sub unit)



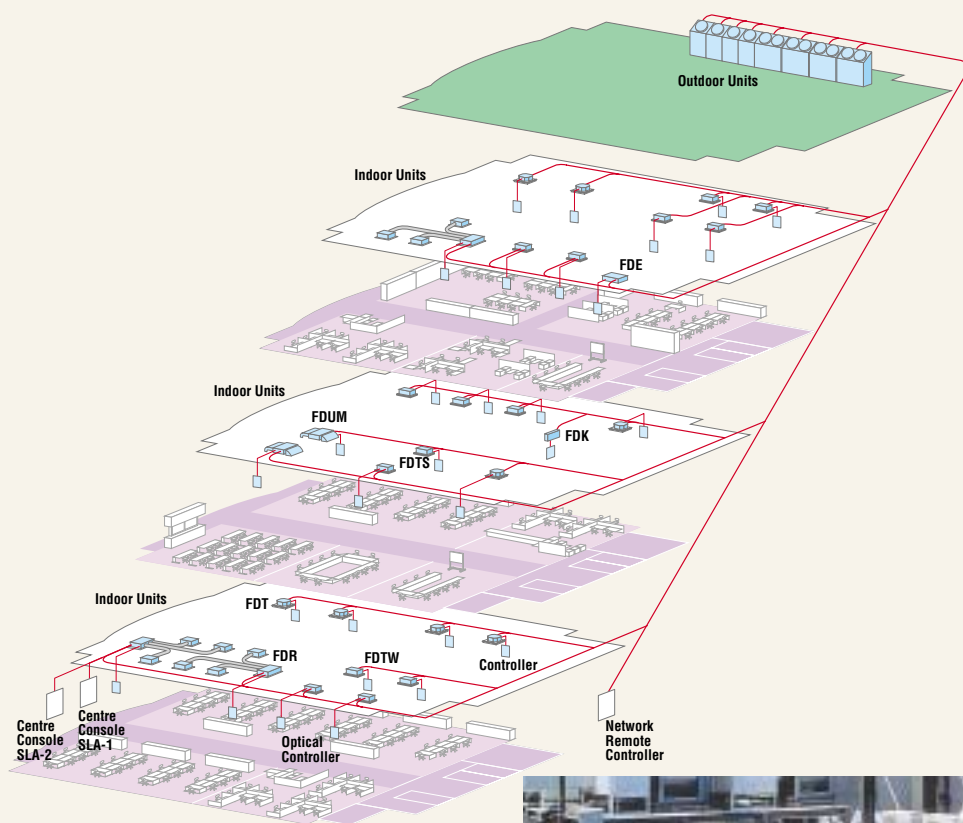
# New building air-conditioning control system designed to meet all future requirements.

## A polarity-free, Two-wire Line Allows a Maximum of 48 Indoor Units to be Incorporated in Network.

Just set the indoor and outdoor units to an address number, linking a maximum of up to 48 indoor units in a network. Only two lines are required for wiring both inside and outside, reducing the conventional cabling to a sixth or an eighth. It fully satisfies the air-conditioning requirements of newer, intelligent buildings, and also dramatically cuts both installation costs and wiring shaft area.

## Networking Directly with Multi KX2 Packaged Air-conditioner.

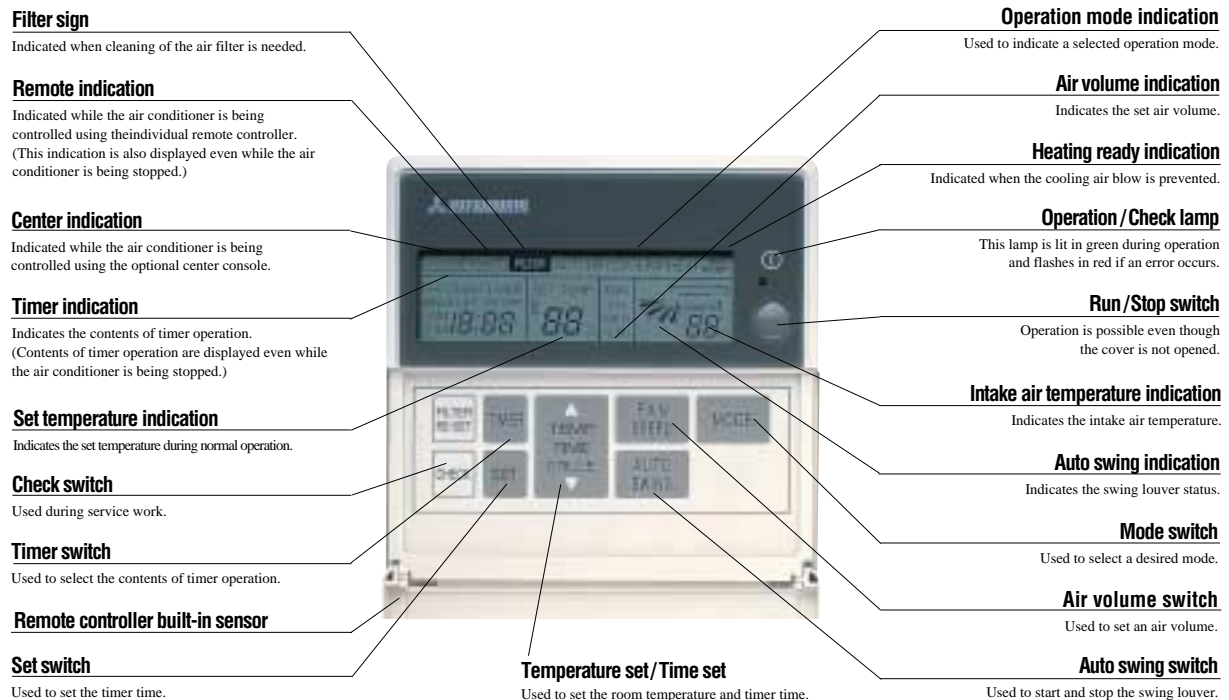
The system can be networked directly with Multi KX2 packaged air-conditioner and an optional controller. Just connect the polarity-free, two-wire signal line



# New Standard remote controller

(optional item)

Use of a clear LCD panel allows easy recognition of operating states. The remote and timer operation indications are displayed even while the air conditioner is being stopped.



## Functionality

- A thermostat function, which can be switched between the air conditioner return air sensor and remote controller built-in sensor is provided.
- A power failure compensation function is provided as standard function. If a power failure occurs during operation, and then is recovered, operation is restarted according to the settings before the power failure occurrence.

(However, it is necessary to set the timer auto swing again.)

One indoor unit can connect two remote controller each.

### Remote-controller :Model name

FDR and FDUM series are not provided with AUTO SWING switch = RCD-HKX-E2

FDFL series are also not provided with AUTO SWING switch = RCD-HKXFL-E2

Except above indoor = RCD-HKX-S-E2 (with Auto swing switch)

## Operability

- The timer is indicated by the 12-hour system, AM or PM. Additionally, it is also possible to set the time in minutes.



- The same key is used for timer setting and room temperature setting. As the number of indication keys with rotary selection was reduced, the display screen was enlarged, improving operability. Additionally, touch feeling of operation keys is much improved.

- 2 remote controllers can be connected to one indoor unit (or one indoor unit group).

### Cover opener

A handle is provided on the cover, resulting in improvement of open/close operability.

### Receiver amp Kit (RCND-KIT-HE)

By mounting the receiver amp kit (option), wireless use is possible with all series.

- Both the standard remote controller and wireless remote controller can be installed simultaneously for one indoor unit.

- The wireless remote controller is enclosed.





# Correspondence to Individual or Centralized Start/Stop up to the Maximum of 16 Units



This center console provides the operation, stop, and inspection for the package air-conditioners up to the maximum of 16 units.

●Sixteen operation switches are used to control the package air-conditioners up to the maximum of sixteen (16) units, which improved the operability sharply.

## Operating condition confirmation function per individual standard unit

●The sixteen (16) LEDs display the Nos. of units being operated. They light green during operation, red during inspection (error), and light-off at stop or non-connection to indicate the condition of each unit at a glance.

## Correspondence to each floor installation

●SLA-1-Es up to the maximum of six units can be

connected on the same network of the Super Link.

●In the case of consecutive addresses, any number from 1 to 16 units can be set per one [SLA-1-E].

## Considerate design for power outage compensation

●The compensation function for the power outage is equipped as the standard features. In the event that there is a power outage during operation, the operation is restarted after restoration using the information stored in the memory.

## Thin and compact design that does not occupy much space

●A compact design of H: 120 mm (4.72 in.) × W:120 mm (4.72 in.), and 15 mm (0.6 in.) thick .

## The wiring installation work is simplified by virtue of the Simple System.

●Tying-in the center console to the Super Link Network can be accomplished directly by only connecting the signal wire of non-polar two-wire type, which simplifies the wiring installation work.

## Combination

Kind	Combination	Remarks
Standard Remote Control	Required	—
Commercial timer	OK	Batch controlled ON/OFF only
Weekly timer(SCA-WT-E)	OK	—
SLA-2A-E	OK	See below mentioned description on SLA-2A-E.

# Maximum of 48 Package Air-conditioner Units (1 to 16 Groups) can be Centrally Controlled.

A new type that a weekly timer can be connected without an interface. The remote control "prohibit/allow" function is newly equipped on the SLA-2A-E.



## Useful thin and compact design

●Sixteen operation switches are used to provide the batch control of 16 groups at the maximum (Number of object is 48 units), which improved the operability sharply.

●A large, easy-to-see LED display is adopted. The operation condition and contents of setting can be confirmed easily.

●The center console can be connected at anywhere on the Super Link Network.

## Individual control by New Standard Remote Control is possible as well.

●In addition to the individual and centralized control, the individual control from the New Standard Remote Control is possible by setting to the center & remote.

●The New Standard Remote Control can be eliminated.

## The SLA-1 makes ON/OFF control possible with each floor as a unit.

●In the case that the center console SLA-2A-E is set to the individual or each floor, connecting the SLA-1-E makes the ON/OFF control of individual/each floor possible from the SLA-1-E.

## Expansion of network control

●Free connection is possible from 1 to 48 units per

one group and up to the maximum of 16 groups (The total number of units of the whole group is 48.) even though the addresses are not consecutive.

●Up to the maximum of 3 unit of SLA-2A-E can be connected in the same Super Link Network.

●The Super Link can stop/start and monitor the package air-conditioner individually, in batch or by the group, it also can control the operation mode and temperature setting. Thus, the Super Link creates advanced air-conditioning control system.

## Demand control and emergency stop control

●Demand control by the external signal is possible.

●Emergency stop control is possible as well.

## Considerate power outage compensation

●The power outage compensation function is provided as the standard features.

In the event that there is a power outage during operation, the operation is restarted after restoration using the information stored in the memory.

## Correspondence to program operation

●By connecting a separately sold weekly timer, the program operation per group up to 16 groups can be performed.

## The wiring installation work is simplified by virtue of the simple system

●The non-polar two-wire type simple system greatly reduces the wiring installation work.

## Connection with the weekly timer without interface

●An interface, which has been necessary until now, became unnecessary.

The weekly timer can be connected easily. The SLA-2A-E alone is equipped with the equivalent function with the old SLA-2-E.

## Combination of SLA-1-E and SLA-2A-E

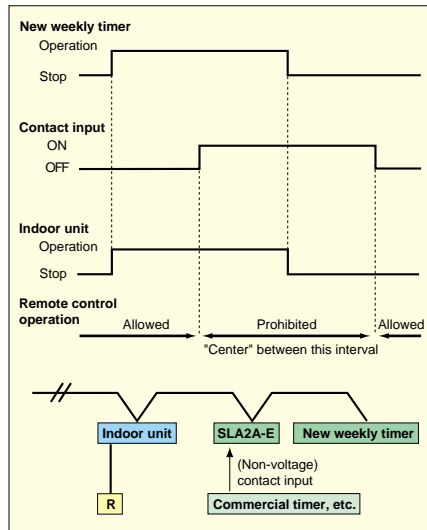
	SLA-1-E	SLA-2A-E
Case 1	6 units	0
Case 2	0	3 units
Case 3	3 units	1 unit
Case 4	2 units	1 unit

## Combination with SLA-2A-E

Kind	Combination	Remarks
New Standard Remote Control	Individual or plural connections	Possible without connection
SLA-1-E	OK	—
SLA-2A-E	OK	—
Weekly timer(SCA-WT-E)	OK	—
Commercial timer	OK	—
External input	OK	Emergency stop by input from the non-voltage "a" contact, demand control, and allowed/prohibited

### Center lock function is equipped.

- Disconnecting the jumper wire (J1) of SLA-2A-E, the demand function is converted to the center lock function.
- When the non-voltage contact input is supplied from the commercial timer to the demand input contact of SLA-2A-E, the unit which has been set to demand setting in SLA-2A-E is converted to the center mode.
- During the center lock, the center/remote changeover switch becomes invalid.



### Remote controller function list

Item	Equipment	Center console SLA-1-E	Center console SLA-2A-E
Individual control (Number of packaged air-conditioners)		16	48
Group control (Number of groups)		—	16
Control	Start/stop (simultaneous, group and individual)	○	○
	Group setting	—	○
	Operation mode (Cooling, dehumidification, heating, blowing and automatic)	—	○
	Priority indication (Center/remote)	—	○
	Room temperature setting	—	○
	Wind volume switching	—	○
	Forced stop	—	○
	Power failure stop/recovery control	—	○
	Demand control	—	○
	Filter sign reset	—	○
Monitoring	Check sign reset	○	○
	Operation condition (Operation/stop)	○	○
	Priority indication (Center/remote)	—	○
	Operation mode (Cooling, dehumidification, heating, blowing and automatic)	—	○
	Wind volume (Fast, strong and weak)	—	○
	Set temperature	—	○
	Automatic swing (ON/OFF)	—	○
	Room temperature display	—	○
	Filter sign	—	○
	Check sign (Error/warning)	○	○

## The Indoor Units up to the Maximum of 48 Units per One System can be Controlled.



### Function item list

#### Monitor mode

Display of current day of the week, time, and program condition

#### Time setting

Setting of current day of the week, and time

#### Timer setting

Setting of timer program

#### Holiday setting

Setting of day of the week for the holiday

### SW9=Control change over switch (SW9-1 and sw9-2)

SW9-1	OFF	Start/stop in batch
SW9-1	ON	The schedule and group setting for each group by use together with SLA-2A-E are performed at the SLA-2A-E side.

### Daily/weekly program can be set by the standard operation.

- Operation reservation for one week can be set.
- The ON/OFF time can be set for three times a day with a minute as the smallest unit. Setting OFF only also prevents forgetting to set the off time.
- Setting the operation reservation day of the week to the holiday setting makes it possible to temporarily cancel an operation reservation.
- The current time, day of the week, and a 24-hours time graph for the day's program operation time can be displayed.

### Using together with the SLA-2A-E makes it possible to set a schedule for each group.

- One unit of weekly timer can control the maximum of 48 indoor units in one system. And furthermore, by combination with SLA-2A-E, the schedule setting for each group (16 groups at the maximum) becomes possible.

### Example of combined system with SLA-2A-E

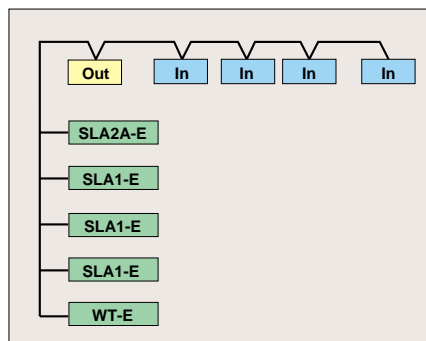
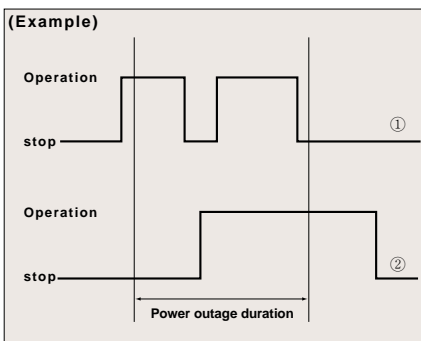
- It is necessary to use together with SLA-2A-E for the group start/stop by the weekly timer. The allowable number of unit that can be connected to SLA-2A-E is only one unit per one system and connection exceeding

this is not allowed.

- Switch the control changeover switch (SW 9) to the appropriate side considering whether SLA-2A is used together or the disposition after power outage recovery.

### Power outage compensation function is equipped.

- During power outage or the power is off, the condition set by the weekly timer is held. After restoration, the monitor mode is displayed conforming to the time when restored.
- Switching the control changeover switch (SW9-2) to ON, transmits an operation (stop) command after power outage recovery using the timer setting mode under recovery.
- When the timer setting mode (as shown in the graph below) is ①, a stop command is transmitted because the system is in the stop mode at power outage recovery. When it is ②, an operation command is transmitted because the system is in the operation mode at power outage recovery.
- Pay attention that the control changeover switch is set to OFF at delivery, therefore no operation (stop) command is sent after power outage recovery.



# R407C Refrigerant Precautions for Servicing and Construction

## 1. Contaminants

1. Compared to the conventional refrigerant system, large amounts of contaminants (oil, water, oxidized film) enter the refrigerant system. Thus, when using clean piping, or displacing the nitrogen during brazing,

take extra special care in controlling the water content and contaminants.

2. Ester oil is used for the lubrication oil. If the conventional oil (barrel freeze, Suniso, etc. ) mixes in,

sludge will form. Thus, always use dedicated tools for the gauge manifold, charge hose, etc.

## 2. Gas leakage

If the refrigerant gas leaks and additional charging is carried out, the composition of the refrigerant in the system will change and may lead to insufficient performance, etc. Thus, recover all

refrigerant in the system to the outside, and recharge the specified amount of refrigerant.

Refrigerant	Conventional refrigerant HCFC22 (single refrigerant)	New refrigerant HFC407C (3-liquid compound refrigerant)
Ester oil	Mineral oil	Synthetic oil (poly olester)
Condensing pressure	1.84MPa (18.8kg/cm <sup>2</sup> )	2.01MPa (20.5kg/cm <sup>2</sup> )

## 3. Refrigerant piping material

For the other refrigerant piping materials, use the JIS H 3300 "Copper Pipe and Steel Alloy Seamless Pipe" C 1220 type copper pipe. The pressure is somewhat higher than the conventional refrigerant , so select a copper pipe with a thickness that corresponds to the new refrigerant and can withstand the pressure.

Refrigerant piping thickness comparison table

Copper pipe outer diameter	φ6.4mm	φ9.5mm	φ12.7mm	φ15.9mm	φ19.1mm	φ22.2mm	φ25.4mm
Copper pipe thickness	Conventional refrigerant HCFC22	0.8mm	0.8mm	1.0mm	1.0mm	1.0mm	1.2mm
	New refrigerant HFC407C	0.8mm	0.8mm	1.0mm	1.0mm	1.2mm	1.4mm

When selecting and laying the copper pipe, always observe the "Refrigerant Safety Rules Related Standards".

# R407C Refrigerant Points for Piping Construction

## Three Rules for Refrigerant Piping Construction

Special caution that differs from other building facility piping is required for the refrigerant piping. If these cautions are ignored, trouble could occur. When constructing the refrigerant piping, exercise special care to make sure that the inside of the pipe is "dry", "clean" and "tight". These three items are the "three rules for refrigerant piping construction".

Three Rules for Refrigerant Piping Construction

	Dry	Clean	Tight
	There is no water inside	There is no dirt inside	There is no refrigerant leakage
Items			
Cause	*Water, such as rain water, enters from outside *Water forms due to condensation in the piping	*Oxidization film during brazing *Foreign matter, such as dirt dust or oil, enters from outside	*Insufficient brazing *Incorrect flare machining or tightening torque control
Generated symptoms	*Clogging of the expansion valve or capillary tubes, etc. *Failure to cool or heat *Deterioration of lubrication oil *Failure of compressor	*Clogging of the expansion valve or capillary tubes, etc. *Failure to cool or heat *Deterioration of lubrication oil *Failure of compressor	*Insufficient gas *Failure to cool or heat *Rise of discharge gas temperature *Deterioration of lubrication oil *Failure of compressor
Prevention measures	Piping maintenance Flushing Vacuum drying	*Same as left *Do not use devices used with other refrigerant	*Follow the basic brazing work *Follow the basic flare machining work *Follow the basic flange connection work *Carry out tightness test (gas leakage)

# R407C Refrigerant Construction Procedures

Precautions (1) All devices will change to the new refrigerant to prevent ozone layer destruction and global warming.

(2) As the properties of the each refrigerant differ, the specifications differ greatly. Refer to the manuals issued by each maker.

## 1. Confirmation before construction

### 1. Type of refrigerant charged in product

Old refrigerant = R22, New refrigerant = R407C

### 2. Confirmation of construction place and specifications

Secure the construction members and tool installation place.

### 3. Confirmation of required tools

The tools must be used according to the type of refrigerant.

Never use the gauge manifold, charge hose, charge cylinder

or vacuum pump with other refrigerants. Always carry out the work with dedicated tools. (Failure to do so could lead to trouble.)

### 4. Confirmation of connection piping (Set length piping, long length piping)

Use the JIS specified piping (Refer to the Refrigerant piping thickness comparison table) to handle the new

refrigerant. Confirm that the piping end has been treated (cap or tape) for the long piping. When using recessed piping construction, always cover the pipe end (with cap or tape).

Table of usage possibilities (R407C)

	Possibility of conventional device use	Remarks
Gauge manifold	x	The pressure increases, and the fitting specifications have been changed.
Charge hose	x	—
Charge cylinder	x	Not compatible with current part
Gas leakage detector	Common with 134a	HFC compliance is required as chlorine is not contained
Vacuum pump	Usable if backflow preventing adaptor (for refrigerant) is installed	—
Pump with back flow prevention	○	—

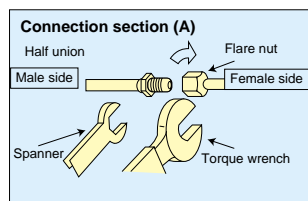
Table of usage possibilities (R407C)

	Possibility of conventional device use	Remarks
Flare tool	○	—
Bender	○	—
Refrigerant cylinder	R407C	The refrigerant name is described on the outside, and the paint color has been changed
Torque wrench	○	—
Cutter, reamer	○	—
Welder, nitrogen cylinder	○	—

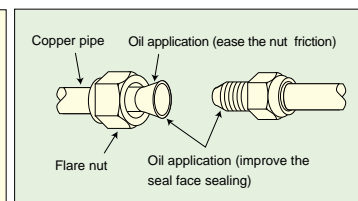
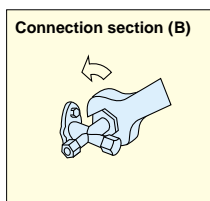
## 2. Flare connection

### Cautions

- (1) Confirm that there are no scratches or dirt, etc., on the flare and union section.
- (2) When applying lubrication oil on the inside and outside of the flare, always use the same lubrication oil as that used in the installed air conditioner. Use of different oil will cause the lubrication oil to deteriorate and the compressor to burn, etc.



Always tighten the connection section with the correct installation torque.

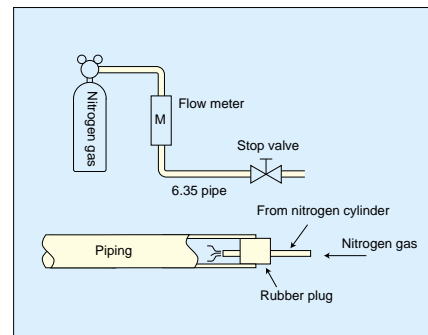


Apply the lubrication oil on the inside of the flare and on the outer surface of the union.

## 3. Brazing work

- (1) Brazing work requires a high level of technology and experience. The work must be carried out by a worker who has completed the "Gas Welding Skill Seminar" specified under the Labor and Sanitation Laws, following theoretical knowledge.
- (2) Brazing work must be carried out while flowing dry nitrogen gas (N<sub>2</sub>) so that an oxidized layer does not form on the inside of the piping material.
- (3) Work methods to prevent oxidization.
  1. Install a pressure-reducing valve and flow meter on the nitrogen cylinder.
  2. Use a 6.35 mm copper pipe for the pipe led to the piping material, and install it on the flow meter of the cylinder side.

3. Always seal (using rubber plug, etc.) the gap between the piping material and nitrogen conduit to prevent the backflow of nitrogen gas.
4. When flowing the nitrogen gas, do not stop it at the end of the piping side. Instead, leave this side open.
5. The guideline for the nitrogen gas is 0.05m/h or 0.02MPa(0.2kg/cm<sup>2</sup>) or less with the pressure-reducing valve.
6. After working, flow the nitrogen gas until the piping cools down (to a point where the pipe can be touched by hand).
7. Remove all flux after brazing work.



## 4. Tightness test

After completing all piping connections, always carry out a tightness test for the refrigerant piping, and confirm that there is no gas leakage.

Note) For pipes having valves that open with the continuity of a solenoid valve, etc., carry out the leakage test, vacuuming and gas charge in the continuity state.

### (1) Tightness leakage test procedures

Always observe the "maker indicated value" for the "applicable gas type", "high pressure side", "low pressure side", and "pressurizing time".

### (2) Cautions

1. After welding, if pressure is applied before the piping temperature drops, the pressure will drop after the pipe cools.
  2. The pressure will rise and drop according to the outdoor temperature. (The constant container gas is proportional to the absolute temperature.)
- \*Absolute pressure at measurement = absolute pressure at pressurizing/273°C + temperature at measurement)

### (3) Locating a leak and its repair

1. If there is a leak, use soap water, etc., to find and repair the leakage section in the welding sections, flare section, flange section and each unit section. (Always flow nitrogen when carrying out repairs that require welding.)
2. If the leakage place is difficult to find, mix Freon gas, and find the approximate leakage place with a leak tester, etc.
3. Always carry out the leakage test before embedding piping recessed in pits, etc.

## 5. Vacuuming

### (1) Vacuum pump

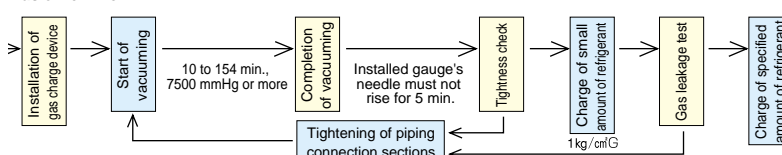
Select an adequate vacuum pump considering the workability and ease of use, etc. Use the capacity of the refrigerant cycle configuring the target device as a guideline. Fitting screw specifications: Use UNF7/16 for the R407C fitting.

### (2) Gauge manifold

Use gauge manifolds and charge hoses dedicated for the HFC-based refrigerant. If tools used with HFCF22

refrigerant are used, the device could be damaged by deteriorated lubrication oil (mineral oil) that is incompatible.

### Basic work flow



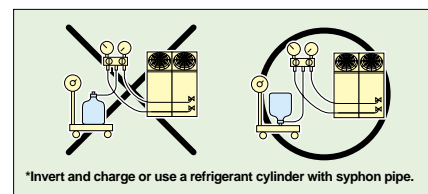
## R407C Refrigerant Charging Method

### 1. Restrictions for charging refrigerant to system and charge cylinder from refrigerant cylinder.

Refrigerants that have restrictions in respect to the liquid-phase charging may change in composition at the gaseous-phase, may not achieve the specified performance, or may damage device. Always charge liquid-phase refrigerant.

### 2. Liquid-phase charging methods and cautions

- (1) The conventional CHFC22 is a singlerefrigerant, and there were no limits to the refrigerant state during charging. Thus, when charging the refrigerant into the system, the following procedure is the most common.



**Charge the refrigerant in the liquid state from the service port (high pressure side) of the liquid outlet operation valve → run the compressor, charge the insufficient amount from the service port (low pressure side) of the intake operation valve in the gaseous state.**

When charging the refrigerant from the intake side, the refrigerant had to be charged in the gaseous state to prevent liquid return operation at the compressor.

- (2) With the HFC refrigerant, the composition changes if not in a liquid-phase, and thus, liquid-phase charging is required. However, in terms of protecting the compressor, the refrigerant at the intake side of the system must still be in a gaseous-phase. The methods for charging the refrigerant into the system basically do not differ from the procedures given above. Thus, when charging HFC refrigerant requiring liquid-phase

charging into the system, the compressor must be run, and caution is required when charging from the suction side. Even when charging the refrigerant from the suction side, always draw out the refrigerant from the cylinder or charge cylinder in a liquid state.

Actual methods are as follow:

- \*1. Close the refrigerant by operating the adjustment valve on the gas cylinder, and when it is drawn into

- the system, adjust so that refrigerant is gassified.
- \*2. There is a dedicated tool for converting the liquid refrigerant into a mist. This tool is installed on the cylinder or charge cylinder valve and used.



## Connectable Indoor Units

**FDTW**



**FDT**



**FDR**



**FDUM**



**FDE**



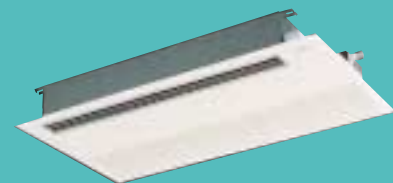
**FDK**



**FDFL/FDFU**



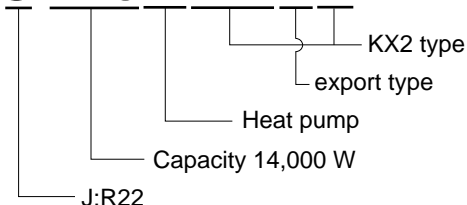
**FDTs**



The direct expansion coil, the open air treatment unit and the feed air treatment unit can be connected as indoor units for Multi KX.

### How to Read a Model Name

**FDEJ 140HKXE2**



### System Extensions for Diverse Needs ( Optional Parts )

- Weekly Timer
- Network Remote Control
- Centre Console SLA-1-E
- Centre Console SLA-2A-E
- Building Management System (BMS)
- Drain up Kit



# FDE

## Ceiling Suspended Type



## FDE Ceiling Suspended Type

- Easy retro-fit application. Low operating noise level and comfort combined with eye appealing style.
- 38dB(A) for FDE56 model. This makes for the lowest noise level in the industry.
- The unit thickness is thin 184mm.
- By the use of aero-wing louvers, downward air supply angle of up to 75 degrees is possible. The angle can be fixed by the use of the remote controller.
- At the time of heating operation start or at the time of defrost (when the defrost thermostat is at off), the louvers air supply angle is automatically set to horizontal direction.



# FDFL/FDFU

## Floor Standing Type



## Floor Type Lowboy FDFL/FDFU

- The 630mm Lowboy type leaves ample space for windows.
- The embedded type is suitable for blending in with the interior decoration, and is easily housed in the perimeter space.
- The pipes can be connected either at the below or back of the unit.
- The air blow angle can be adjusted from vertically above to 60 degrees forward.

## Specifications

Model		FDE						FDFL			FDFU			
		FDEJ36HKXE2	FDEJ45HKXE2	FDEJ56HKXE2	FDEJ71HKXE2	FDEJ112HKXE2	FDEJ140HKXE2	FDFLJ28HKXE2	FDFLJ45HKXE2	FDFLJ71HKXE2	FDFUJ28HKXE2	FDFUJ45HKXE2	FDFUJ56HKXE2	FDFUJ71HKXE2
Cooling capacity	kW	3.6	4.5	5.6	7.1	11.2	14	2.8	4.5	7.1	2.8	4.5	5.6	7.1
	BTU/h	12300	15400	19100	24200	38200	47800	9600	15400	24200	9600	15400	————	24200
	kcal/h	3100	3900	4800	6100	9600	12000	2400	3900	6100	2400	3900	————	6100
Heating capacity	kW	4	5	6.3	8	12.5	16	3.2	5	8	3.2	5	6.3	8
	BTU/h	13700	17100	21500	27300	42700	54600	10900	17100	27300	10900	17100	————	27300
	kcal/h	3400	4300	5400	6900	10800	13800	2800	4300	6900	2800	4300	————	6900
Air Flow Rate (H/M/L)	m³/min	14/12/10	14/12/10	14/12/10	18/15/12	28/25/22	34/30/26	12/11/10	14/12/10	18/15/12	12/11/10	14/12/10		18/15/12
	cfm	494/424/353	494/424/353	494/424/353	636/530/424	988/883/777	1200/1059/918	424/388/353	494/424/353	636/530/424	424/388/353	494/424/353		636/530/424
Sound Level(H/M/L)	dB(A)	43/40/38	43/40/38	43/40/38	44/40/38	49/46/42	50/47/42	41/38/36	43/41/40		41/38/36	43/41/40		
Dimension(HxWxD)	mm	184x1000x650+240			184x1260x650+240		239x1260x650+240		239x1470x650+240		630x1196x225		630x1481x225	630x1362x225
Machine Weight	kg	22			27	34	40	32		40	25			32
Connection Refrigerant Lines	Liquid(Flare)mm	φ6.35			φ9.52			φ6.35		φ9.52	φ6.35			φ9.52
	Gas(Flare)mm	φ12.7		φ15.88		φ19.05		φ12.7		φ15.88	φ12.7		φ15.88	
	Drain Piping	VP20						VP20			VP20			
Power Source		1 φ220/240V, 50Hz						1 φ220/240V, 50Hz			1 φ220/240V, 50Hz			



# FDK

## Wall Mounted Type



### FDK Wall mounted type

- Thin unit at thickness of only 194mm.
- To provide maximum comfort aero-trap louver is used. Downward angle adjustment of up to 70degrees is possible. Louver angle can be fixed at certain angle with the use of wireless remote controller.
- Use of silent fans made it possible to attain sound level of 37 dB for FDK45.
- Optional drain up kit makes it possible to attain a drain up head of 1000mm.



# FDUM

## Medium Static Pressure Ducted Type



### FDUM Medium Static Pressure Ducted Type

- Sound level of 29dB for FDUM71, made possible by the use of silent stream fans.
- Thin design makes for possible installation in shallow space. Makes a comfort that is equivalent to high external static pressure type ducted units.
- High head type drain pump is incorporated into the indoor unit. Drain head height of 500mm can be obtained in close proximity to the indoor unit.
- Service work can be done from beneath the unit by removing the bottom panel.
- When the high speed tap is used, 200mm diameter round duct can be extended by 20m to one location.

### Specifications

Model		FDK						FDUM							
		FDKJ22HKXE2	FDKJ28HKXE2	FDKJ36HKXE2	FDKJ45HKXE2	FDKJ56HKXE2	FDKJ71HKXE2	FDUMJ36HKXE2	FDUMJ45HKXE2	FDUMJ56HKXE2	FDUMJ71HKXE2	FDUMJ90HKXE2	FDUMJ112HKXE2	FDUMJ140HKXE2	
Cooling capacity	kW	2.2	2.8	3.6	4.7	5.6	7.1	3.6	4.5	5.6	7.1	9	11.2	14	
	BTu/h	7500	9600	12300	15400	19100	24200	12300	15400	19100	24200	30700	38200	47800	
	kcal/h	1900	2400	3100	3900	4800	6100	3100	3900	4800	6100	7700	9600	12000	
Heating capacity	kW	2.5	3.2	4	5	6.3	8	4	5	6.3	8	10	12.5	16	
	BTu/h	8500	10900	13700	17100	21500	27300	13700	17100	21500	27300	34100	42700	54600	
	kcal/h	2200	2800	3400	4300	5400	6900	3400	4300	5400	6900	8600	10800	13800	
Air Flow Rate	m <sup>3</sup> /min	9/8	10/9/8	10/9/8	11.5/10/8	17/15/13	21/18/15	12/11/10	14/12/11	14/12/11	18/16/14	20/18/15	28/25/22	34/31/27	
(H/(M)/L)	cfm	318/283	353/318/283	353/318/283	406/353/283	741/636/530	741/636/530	424/388/353	494/424/388	494/424/388	635/565/494	706/635/530	988/883/777	1200/1094/953	
Sound Level(H/(M)/L)	dB(A)	42/37	42/40/37	42/40/37	44/41/37	46/43/39	47/44/40	34/32/29	35/32/29	35/32/29	35/32/29	36/33/30	38/35/32	39/37/34	
Dimension(HxWxD)	mm	375x930x194				375x1148x194	375x1436x194	299x750x635			299x950x635		350x1370x635		
Machine Weight	kg	19				20	22	34			40		57	59	
Connection	Liquid(Flare)mm	φ6.35				φ9.52		φ6.35		φ9.52					
Refrigerant	Gas(Flare)mm	φ12.7				φ15.88		φ12.7		φ15.88			φ19.05		
Lines	Drain Piping	I.D. 16mm						VP25							
Power Source		1 φ 220/240V, 50Hz						1 φ 220/240V, 50Hz							



# FDR

**Ceiling Ducted Cassetteria Type with Decoration Panel**



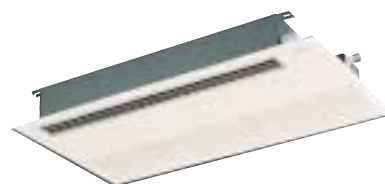
## FDR Ceiling Ducted Cassetteria Type

- Ceiling ducted cassette type.
- External static pressure that is highest of its class at 39Pa at standard tap and 98Pa at high speed tap was realized.
- High head drain pump that has drain head height of 500mm adjacent to the unit.



# FDTS

**Ceiling Recessed Single Air SupplyPort Type**



## FDTS Ceiling Recessed Single Air Supply Port Type

- Can be installed in rooms with 4m high ceiling as the single air supply port can deliver a strong air flow.
- High head drain pump is a standard feature. The drain can be raised to 500mm for smooth drainage of the condensate.

### Specifications

Model		FDR								FDTS					
		FDRJ22HKXE2	FDRJ28HKXE2	FDRJ45HKXE2	FDRJ56HKXE2	FDRJ71HKXE2	FDRJ90HKXE2	FDRJ112HKXE2	FDRJ140HKXE2	FDTSJ22HKXE2	FDTSJ28HKXE2	FDTSJ36HKXE2	FDTSJ45HKXE2	FDTSJ71HKXE2	
Cooling capacity	kW	2.2	2.8	4.5	5.6	7.1	9	11.2	14	2.2	2.8	3.6	4.5	7.1	
	BTU/h	7500	9600	15400	19100	24200	30700	38200	47800	7500	9600	12300	15400	24200	
	kcal/h	1900	2400	3900	4800	6100	7700	9600	12000	1900	2400	3100	3900	6100	
Heating capacity	kW	2.5	3.2	5	6.3	8	10	12.5	16	2.5	3.2	4	5	8	
	BTU/h	8500	10900	17100	21500	27300	34100	42700	54600	8500	10900	13700	17100	27300	
	kcal/h	2200	2800	4300	5400	6900	8600	10800	13800	2200	2800	3400	4300	6900	
Air Flow Rate (H/M/L)	m³/min	10/9/8	12/11/10	14/12/11		18/16/14	20/18/15	28/25/22	34/31/27	8/11	12/11/10	12/11/10	14/12/10	18/15/12	
	cfm	353/318/282	424/388/353	494/424/388		636/565/494	706/636/530	988/883/777	1200/1094/953	282/388	424/388/353	424/388/353	494/424/353	636/530/424	
Sound Level (H/M/L)	dB	Silent	41/39/36	42/40/37	43/40/37	43/40/37	43/40/37	45/42/38	46/43/39	39/38	40/39/38	40/39/38	43/40/38	44/40/38	
	(A)	Canvas	42/40/37	43/41/38	44/41/38	44/41/38	44/41/38	46/43/39	47/44/40						
Dimension (HxWxD)	mm	Silent	355x750x635				355x950x635		406x1370x635		194x1040x650				194x1300x650
	Canvas		355x750x635				355x950x635		406x1370x635						
Machine Weight	kg	30				35		50	52	26				30	
Connection Refrigerant Lines	Liquid(Flare)mm	φ6.35				φ9.52				φ6.35				φ9.52	
	Gas(Flare)mm	φ12.7				φ15.88				φ12.7				φ15.88	
	Drain Piping	VP25								VP25					
Dimension Panel	mm	Silent	10x1040x750				10x1240x750		10x1660x750		10x1290x770				10x1500x700
	Canvas		10x864x585				10x1064x585		10x1484x585						
Weight	kg	Silent	7				8		9		6				7
	Canvas		5				6		7						
Power Source		1 φ220/240V,50Hz								1 φ220/240V,50Hz					





# FDT

## Ceiling Recessed Type Unit



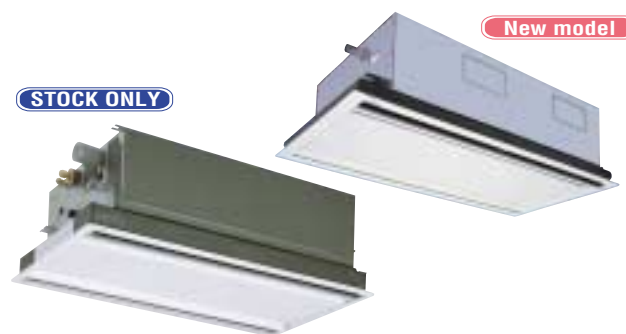
## FDT Ceiling Recessed Type Unit

- Protrudes just 8mm at the ends and 22mm in the center.
- Up to 500mm drain up is possible near the unit.
- The large suction grille allows easy maintenance of electrical parts.
- Simply open the grille for easy maintenance of all parts.
- Sound level of only 34dB for FDT28 model.
- Weight of 24kg for the FDT28 model.



# FDTW

## Two-Way Ceiling Mounted Cassette Type



## FDTW Two-Way Ceiling Mounted Cassette Type

- Parts protrude just 8mm from the ceiling.
- The automatic swing louver assures a wide, bi-directional blow, and the louver angles are adjustable in 4 steps from horizontal to 60 degrees with the remote controller.
- Up to 600mm drain up is possible with the 200mm drain head.

### Specifications

Model		FDT							
		FDTJ28HKXE2	FDTJ36HKXE2	FDTJ45HKXE2	FDTJ56HKXE2	FDTJ71HKXE2	FDTJ90HKXE2	FDTJ112HKXE2	FDTJ140HKXE2
Cooling capacity	kW	2.8	3.6	4.5	5.6	7.1	9	11.2	14
	BTu/h	9600	12300	15400	19100	24200	30700	38200	47800
	kcal/h	2400	3100	3900	4800	6100	7700	9600	12000
Heating capacity	kW	3.2	4	5	6.3	8	10	12.5	16
	BTu/h	10900	13700	17100	21500	27300	34100	42700	54600
	kcal/h	2800	3400	4300	5400	6900	8600	10800	13800
Air Flow Rate(H/M/L)	m <sup>3</sup> /min	12/10/9	12/10/9	15/12/10	15/12/10	16/13/11	21/15/12	28/24/21	30/26/22
	cfm	424/353/318	424/353/318	530/424/353	530/424/353	565/459/388	706/530/424	988/847/741	1059/918/777
Sound Level(H/M/L)	dB(A)	40/38/34	40/38/34	41/38/36	41/38/36	42/40/39	44/42/39	52/47/42	54/48/45
Dimension(HxWxD)	mm	260x840x840						320x840x840	
Machine Weight	kg	24						28	30
Connection	Liquid(Flare)/mm	φ6.35			φ9.52				
Refrigerant	Gas(Flare)/mm	φ12.7			φ15.88			φ19.05	
Lines	Drain Piping	VP25							
Dimension Panel	mm	30x950x950							
	Weight	7							
Power Source		1 φ220/240V, 50Hz							

Model		FDTW <span>STOCK ONLY</span>			
		FDTWJ28HKXE2	FDTWJ45HKXE2	FDTWJ56HKXE2	FDTWJ71HKXE2
Cooling capacity	kW	2.8	4.5	5.6	7.1
	BTu/h	9600	15400	19100	24200
	kcal/h	2400	3900	4800	6100
Heating capacity	kW	3.2	5	6.3	8
	BTu/h	10900	17100	21500	27300
	kcal/h	2800	4300	5400	6900
Air Flow Rate(H/M/L)	m <sup>3</sup> /min	15/12/9	15/12/9	15/12/9	16/13/11
	cfm	530/424/318	530/424/318	530/424/318	565/459/388
Sound Level(H/M/L)	dB(A)	42/38/33	42/38/33	42/38/33	42/39/35
Dimension(HxWxD)	mm	380x809x620			380x1054x620
Machine Weight	kg	31			37
Connection	Liquid(Flare)/mm	φ6.35			
Refrigerant	Gas(Flare)/mm	φ12.7			φ15.88
Lines	Drain Piping	VP25			
Dimension Panel	mm	8x1055x680			8x1300x680
	Weight	10			11
Power Source		1 φ220/240V, 50Hz			

## Before starting use

### Heating performance

The heating performance values (kW) described in catalog are the values obtained by operating at an outdoor temperature of 7°C and indoor temperature of 20°C as set forth in the ISO Standards. As the heating performance decreases as the outdoor temperature drops, if the outdoor temperature is too low and the heating performance is insufficient, use other heating appliances as well.

### Indication of sound values

The sound values are the values (A scale) measured in a chamber such as an anechoic chamber following the ISO Standards. In the actual installation state, the value is normally larger than the values given in the catalog due to the effect of surrounding noise and echo. Take this into consideration when installing.

### Use in oil atmosphere

Avoid installing this unit in an atmosphere where oil scatters or builds up, such as in a kitchen or machine factory. If the oil adheres to the heat exchanger, the heat exchanging performance will drop, mist may be generated, and the synthetic resin parts may deform and break.

### Use in acidic or alkaline atmosphere

If this unit is used in an acidic or alkaline atmosphere such as hot spring areas having high levels of sulfuric gases, places where the exhaust of the heat exchanger is sucked in, or at coastal areas where the unit is subject to salt breezes, the outer plate or heat exchanger, etc., will corrode. Use the anti-corrosion specification model at places differing from a general atmosphere.

### Use in places with high ceilings

If the ceiling is high, install a circulator to improve the heat and air flow distribution when heating.

### Refrigerant leakage

The refrigerant gas (R-22) used for the building multi is non-toxic and

inflammable in its original state. However, in consideration of a state where the refrigerant leaks into the room, measures against refrigerant leaks must be taken in small rooms where the tolerable level could be exceeded. Take measures by installing ventilation devices, etc.

### Use in snowy areas

Take the following measures when installing the outdoor unit in snowy areas.

### Snow fall

Install a snow-prevention hood so that the snow does not obstruct the air intake port, and so that the snow does not enter and freeze in the outdoor unit.

### Snow piling

In areas with heavy snow fall, the piled snow could block the air intake port. In this case, a frame that is 50cm or higher than the estimated snow fall must be installed underneath the outdoor unit.

### Automatic defrosting device

If the temperature is low, and the humidity is high, frost will stick to the heat exchanger of the outdoor unit. If use is continued, the heating performance will drop.

The "Automatic defrosting device" will function to remove this frost.

After heating for approx. three to ten minutes, it will stop, and the frost will be removed. After defrosting, hot air will be blown again.

### Serving the air-conditioner

After the air-conditioner is used for several seasons, dirt will build up in the air-conditioner causing the performance to drop. In addition to regular servicing, we recommend the maintenance contract (charged for) by a specialist.

## Safety Precautions

### [Air-conditioner usage target]

The air-conditioner described in this catalog is a dedicated cooling/heating device for human use.

Do not use it for special applications such as the storage of foodstuffs, animals or plants, precision devices or valuable art, etc. This could cause the quality of the items to drop, etc.

Do not use this for cooling vehicles or ships. Water leakage or current leaks could occur.

### [Before use]

Always read the "Instruction Manual" thoroughly before starting use.

### [Installation]

Always commission the installation to a dealer or specialist. Improper installation will lead to water leakage, electric shocks and fires.

Use the MHI-designated products for the accessories such as the air purifier, humidifier, and auxiliary electric heater for heating.

Always commission the installation to a dealer or specialist. Improper installation will lead to water leakage, electric shocks and fires.

### [Usage place]

Do not install in places where combustible gas could leak or where there are sparks.

Installation in a place where combustible gas could be generated, flow or accumulate, or places containing carbon fibers could lead to fires.

			FDTW <div>New model</div>						
FDTWJ90HKXE2	FDTWJ112HKXE2	FDTWJ140HKXE2	FDTWJ28HKXE2B	FDTWJ45HKXE2B	FDTWJ56HKXE2B	FDTWJ71HKXE2B	FDTWJ90HKXE2B	FDTWJ112HKXE2B	FDTWJ140HKXE2B
9	11.2	14	2.8	4.5	5.6	7.1	9	11.2	14
30700	38200	47800	9600	15400	19100	24200	30700	38200	47800
7700	9600	12000	2400	3900	4800	6100	7700	9600	12000
10	12.5	16	3.2	5	6.3	8	10	12.5	16
34100	42700	54600	10900	17100	21500	27300	34100	42700	54600
8600	10800	13800	2800	4300	5400	6900	8600	10800	13800
19/16/12	28/24/20	30/26/22	14/12/10	14/12/10	14/12/10	16/13/11	19/16/12	28/25/23	32/28/24
671/565/424	988/847/706	1059/918/777	530/424/318	530/424/318	530/424/318	565/459/388	671/565/424	988/847/706	1059/918/777
42/40/36	44/41/37	46/43/38	39/36/33	39/36/33	39/36/33	41/38/35	41/39/36	44/41/38	45/42/39
380x1054x620	380x1524x620		280x817x620			330x1054x620		345x1524x620	
37	53		19			26		38	
ϕ 9.52			ϕ 6.35			ϕ 9.52		ϕ 9.52	
ϕ 15.88	ϕ 19.05		ϕ 12.7			ϕ 15.88			
VP25			VP25						
8x1300x680	8x1770x680		8x1055x680			8x1300x680		8x1770x680	
11	13		7			9		11	
1 ϕ 220/240V, 50Hz			1 ϕ 220/240V, 50Hz						



Inverter-driven, Multi-indoor-unit Climate Control KX2-System.

#### ISO9001

Our Air Conditioning & Refrigeration Machinery Works is an ISO9001 approved factory for residential air conditioners and commercial-use air conditioners (including heat pumps).

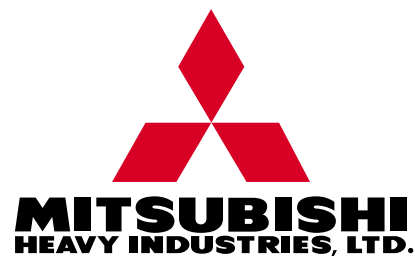


#### ISO14001

Our Air Conditioning & Machinery Works has been assessed and found to comply with the requirements of ISO 14001.



Because of our policy of continuous improvement, we reserve the right to make changes in all specifications without notice.



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